

Claims

1. A luminaire for providing uniform color and brightness from multiple small light sources, comprising a shallow plate of transparent material having a first surface which is substantially flat, and a second surface which includes patterned planes acutely disposed to the first surface, each second surface being adjacent to an entry face into which light from the multiple small light sources is projected into the plane.
2. A luminaire as defined in claim 1 where the small light sources are LEDs.
3. A luminaire as defined in claim 1 wherein the shallow plate is made of acrylic or glass.
4. A luminaire as in claim 1 wherein the first surface is includes a diffusion material.
5. A luminaire as in claim 1 wherein the first surface includes refractive prisms.
6. A luminaire as in claim 1 wherein the planes of the second surface are patterned parallel to each other and canted in the same direction.
7. A luminaire as in claim 1 wherein the planes of the second surface are patterned in pairs, the planes of each pair being canted toward each other, each pair being parallel to the next pair.
8. A luminaire as in claim 1 wherein the shallow plate is hollow, the first surface is translucent and the second surfaces are reflective.
9. A luminaire as defined in claim 1 in the form of a shallow plane.

10. A luminaire for providing uniform color and brightness from multiple LEDs comprising multiple LEDs, a shallow plate of transparent material having one substantially flat surface and a second surface which is the form of a shallow cone, acute to the first surface, the plate having a round or rectangular hole substantially on the center axis of the cone, the walls of the hole being essentially a window to allow in projected light from the multiple LEDs.

11. A luminaire as defined in claim 10 in the form of a shallow plane.

12. A luminaire for providing uniform color and brightness comprising: multiple LEDs each surrounded by a collimating ring lens, a shallow cone of transparent material having a first surface that is substantially flat and a second surface which includes shallow cones, arranged in a geometric pattern, the apex of the cones having blind holes, the inner surfaces of which are essentially clear so as to accept the light from one of the LEDs surrounded by the collimating ring lens.

13. A luminaire as defined in claim 12 wherein the transparent material is acrylic or glass.

14. A luminaire as defined in claim 12 in the form of a shallow plane.

15. A luminaire for providing uniform color and brightness comprising multiple LEDs, each surrounded by a canted ring lens, a first plane onto which the multiple LEDs are attached in a geometric pattern, each LED surrounded by the canted ring lens projecting a canted radial beam onto a second plane, the second plane having a surface which includes prisms or diffusion surfaces.

16. A luminaire as defined in claim 14 in the form of a shallow plane.

17. A luminaire for providing uniform color and brightness from comprising multiple LEDs, rectangular bars of which the upper and lower faces are acutely tapered toward each other, the bars being in a patterned arrangement such that

the tapers alternate from one bar to another, the wide end of each bar having a clear face to accept light from an LED, the sides of the bars connecting to form a unified plate.

18. A luminaire as defined in claim 16 in the form of a shallow plane.